

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

NXP USA, INC., and NXP B.V.,

Plaintiffs,

v.

IMPINJ, INC.,

Defendant.

CASE NO. 2:20-cv-01503-JHC

ORDER MODIFYING CLAIM
CONSTRUCTION

I.

INTRODUCTION

This matter comes before the Court sua sponte. On November 4, 2022, the Court issued a claim construction order. *See* Dkt. # 247. The Court construed several terms in U.S. Patent Number 7,347,097 (“the ’097 Patent”). Among those was the term “voltage-raising means that are arranged to raise the voltage value of the control signal.” The Court construed the term to be a means-plus-function term. Dkt. # 247 at 33–39. The Court stated that the function was “raising the voltage value of the control signal,” and the corresponding structure was “a charge pump or the float-based structure described at 2:43–48 of the ’097 Patent” and equivalents thereof. *Id.*

1 After developing a deeper understanding of the technology at issue and Federal Circuit
2 case law, the Court finds it necessary to modify that construction. The Court concludes that the
3 “voltage-raising means” term is not a means-plus-function term, and that it should be construed
4 as “a circuit that raises the voltage value of the control signal.”

5 II.

6 LEGAL PRINCIPLES

7 A. General Claim Construction Principles

8 “It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention
9 to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303,
10 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.,*
11 *Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90
12 F.3d 1576, 1582 (Fed. Cir. 1996) (“[W]e look to the words of the claims themselves . . . to define
13 the scope of the patented invention.”).

14 When construing a patent claim, the words of the claim “are generally given their
15 ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312 (quoting *Vitronics*, 90 F.3d at
16 1582). The “ordinary and customary meaning” of a term is the meaning of the words as
17 understood by a person of ordinary skill in the art (“POSITA”) at the time of the invention. *Id.* at
18 1313. Although words in a claim are generally given their ordinary meaning, the Federal Circuit
19 has recognized “two exceptions to this general rule: 1) when a patentee sets out a definition and
20 acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term
21 either in the specification or during prosecution.” *Thorner v. Sony Comput. Ent. Am. LLC*, 669
22 F.3d 1362, 1365 (Fed. Cir. 2012). For the patentee’s unique definition to govern, the patentee
23 must “clearly set forth a definition of the disputed claim term other than its plain and ordinary
24 meaning. *Id.* (internal quotation marks and citation omitted). The “standard for disavowal of

1 claim scope is similarly exacting.” *Id.* at 1366. “Absent a clear disavowal in the specification or
2 the prosecution history, the patentee is entitled to the full scope of its claim language.” *Home*
3 *Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed.Cir.2004).

4 To determine the meaning of a disputed term, courts mainly rely on “intrinsic” evidence:
5 the claim language, the written description in the specification, and the patent’s prosecution
6 history. *Phillips*, 415 F.3d at 1311–17. A court’s analysis begins with the language in the
7 claims. *See id.* at 1314; *Innova/Pure Water*, 381 F.3d at 1116 (“[C]laim construction analysis
8 must begin and remain centered on the claim language itself.”). But claim terms are not to be
9 read in a vacuum. Rather, claims “are part of a fully integrated written instrument . . . consisting
10 principally of a specification that concludes with the claims.” *Phillips*, 415 F.3d at 1315 (citation
11 and internal quotation marks omitted); *see also id.* at 1313. The specification is particularly
12 important to claim construction and is often “the single best guide to the meaning of a disputed
13 term.” *Id.* at 1315 (quoting *Vitronics*, 90 F.3d at 1582). This is because the specification “aids
14 in ascertaining the scope and meaning of the claims.” *Id.* (quoting *Standard Oil Co. v. Am.*
15 *Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985)). Thus, courts “rely heavily” on the
16 specification. *Id.* at 1317.

17 Courts often struggle when using the specification to guide the claim construction
18 inquiry. *Id.* at 1323. On the one hand, courts rely on the specification to help determine the
19 meaning of a disputed term. *Id.* On the other hand, the Federal Circuit has repeatedly warned
20 that a court may not read limitations from the specification into the claim. *Id.*; *see also Laitram*
21 *Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998) (noting that it is a “well-established
22 principle that a court may not import limitations from the written description into the claims”);
23 *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir.
24 2001) (observing that one of the “cardinal sins of patent law” is “reading a limitation from the

written description into the claims”). The “distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice.” *Phillips*, 415 F.3d at 1323. But the Federal Circuit has explained that “the line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court’s focus remains on understanding how a person of ordinary skill in the art would understand the claim terms.” *Id.*

In addition to considering intrinsic evidence (like the claim language and specification), courts may also rely on “extrinsic” evidence. Extrinsic evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370, (1996) (citation omitted). While extrinsic evidence may be useful, it is generally given less weight than intrinsic evidence. *Phillips*, 415 F.3d at 1317.

The construction of a patent’s claims is a question of law to be decided by the court. *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 321 (2015); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996).

B. Principles for Means-Plus-Function Claims

Under 35 U.S.C. § 112, ¶ 6 (now codified at 35 U.S.C. § 112(f)),¹ claims may be drafted in a “means-plus-function” format in which the claim “recites a function to be performed rather than definite structure or materials for performing that function.” *Lockheed Martin Corp. v.*

¹ The America Invents Act (“AIA”) amended and reorganized section 112, moving 35 U.S.C. 112, ¶ 6 to 35 U.S.C. § 112(f). But the AIA did not substantively change the means-plus-function portion of the statute. Because the patents at issue were filed before the AIA took effect, this order refers to the pre-AIA version of Section 112. See *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1343 n.2 (Fed. Cir. 2015) (en banc).

1 *Space Sys./Loral, Inc.*, 324 F.3d 1308, 1318 (Fed. Cir. 2003) (citing 35 U.S.C. § 112, ¶ 6). By
2 allowing inventors to draft claims in this manner,

3 Congress struck a balance in allowing patentees to express a claim limitation by
4 reciting a function to be performed rather than by reciting structure for performing
5 that function, while placing specific constraints on how such a limitation is to be
6 construed, namely, by restricting the scope of coverage to only the structure,
7 materials, or acts described in the specification as corresponding to the claimed
8 function and equivalents thereof.

9 *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (en banc).

10 Interpreting a means-plus-function limitation is a multi-step process. A court must first
11 determine whether the term is drafted in a means-plus-function format such that § 112, ¶ 6
12 applies. *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1344 (Fed. Cir. 2019); *Williamson*, 792 F.3d
13 at 1348. The presence of the word “means” in a claim creates a rebuttable presumption that the
14 claim is governed by § 112, ¶ 6. *See Egenera, Inc. v. Cisco Sys., Inc.*, 972 F.3d 1367, 1372 (Fed.
15 Cir. 2020) (“We presume that claim terms with the word ‘means’ invoke § 112(f)”; *Williamson*,
16 792 F.3d at 1348. But courts must not reflexively “evaluate[] form over substance when
17 evaluating whether a claim limitation invokes § 112, para. 6.” *Williamson*, 792 F.3d at 1348.

18 The Federal Circuit has explained:

19 In making the assessment of whether the limitation in question is a means-plus-
20 function term subject to the strictures of § 112, para. 6, our cases have emphasized
21 that the essential inquiry is not merely the presence or absence of the word
22 “means” but whether the words of the claim are understood by persons of ordinary
23 skill in the art to have a sufficiently definite meaning as the name for structure.

24 *Id.* (citation omitted); *see also MTD Prods.*, 933 F.3d at 1344 (“As part of this step, we consider
whether the claim limitation connotes ‘sufficiently definite structure’ to a person of ordinary skill
in the art.”). “To determine whether a claim recites sufficient structure, it is sufficient if the
claim term is used in common parlance or by persons of skill in the pertinent art to designate
structure, even if the term covers a broad class of structures and even if the term identifies the

1 structures by their function.” *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir.
2 2017) (citation and quotation marks omitted); *see also MTD Prods.*, 933 F.3d at 1344; *Dyfan,*
3 *LLC v. Target Corp.*, 28 F.4th 1360, 1365–66 (Fed. Cir. 2022).

4 III.

5 DISCUSSION

6 A. Background on the '097 Patent

7 Many data carriers contain storage systems used to store information temporarily. These
8 carriers can, for example, temporarily store an indication of successful communication with a
9 communication station. Dkt. # 137 at 21. The information is stored and represented “by a value
10 of an information voltage that arises at the capacitor.” '097 Patent, 1:45–47. The '097 Patent
11 identifies a problem in the prior art: The information voltage would continuously decline due to
12 “unavoidable leakage currents in the circuit.” *Id.* at 1:62–2:1. This decline in voltage would
13 lead to an “unsatisfactory situation” because the information was “no longer able to be evaluated
14 after only a short period of time.” *Id.* at 2:2–7.

15 The '097 Patent describes an invention that purports to solve this problem. The invention
16 described by the '097 Patent provides “a substantially longer period of time during which the
17 stored information can be ascertained with high reliability.” *Id.* at 2:34–36. This also allows the
18 information to remain accessible if a brief supply-voltage failure occurs. *Id.* at 2:35–42. The
19 patent achieves this in part by adding a “voltage-raising means” to the “information-voltage
20 generating means.” *Id.* at 2:13–23; *see also* Dkt. # 135 at 17.

21 The '097 Patent describes a data carrier that temporarily stores information capacitively.
22 '097 Patent, 1:1–18. The information is represented by the value of an “information voltage,”
23 which is produced by “information-voltage generating means.” *Id.* The specification describes
24 an embodiment in which the “information-voltage generating means” receive a “control signal”

1 and are further comprised of a “charging-current generating stage,” a “voltage-raising means,”
 2 and a voltage-limiting means. *Id.* at 3:60–4:14.

3 Claim 1 of the ’097 Patent exemplifies the patent’s use of the “voltage-raising means”
 4 term. That claim describes “information-voltage generating means . . . that are arranged to
 5 generate the information voltage by using the control signal, characterized in that the
 6 information-voltage generating means have *voltage-raising means that are arranged to raise the*
 7 *voltage value of the control signal.*” ’097 Patent, 8:66–9:5 (emphasis added).

8 The parties asked the Court to construe the term “voltage-raising means that are arranged
 9 to raise the voltage value of the control signal.” In its initial claim construction order, the Court
 10 construed the term to be a means-plus-function term. Dkt. # 247 at 33–39. The Court stated that
 11 the function was “raising the voltage value of the control signal,” and the corresponding structure
 12 was “a charge pump or the float-based structure described at 2:43–48 of the ’097 Patent” and
 13 equivalents thereof. *Id.*

14 B. Modification of a Court’s Construction

15 The Court finds it appropriate to revisit its prior construction. The Federal Circuit
 16 permits courts to modify claim construction throughout litigation: “[Courts] may engage in a
 17 rolling claim construction, in which the court revisits and alters its interpretation of the claim
 18 terms as its understanding of the technology evolves. This is particularly true where issues
 19 involved are complex, either due to the nature of the technology or because the meaning of the
 20 claims is unclear from the intrinsic evidence.” *Jack Guttman, Inc. v. Kopykake Enterprises, Inc.*,
 21 302 F.3d 1352, 1361 (Fed. Cir. 2002) (citation omitted); *see also Conoco, Inc. v. Energy & Env’t*
 22 *Int’l, L.C.*, 460 F.3d 1349, 1359 (Fed. Cir. 2006) (“[A] district court may engage in claim
 23 construction during various phases of litigation, not just in a *Markman* order.”). The Federal
 24 Circuit has affirmed a district court’s sua sponte modification of a claim construction decision in

1 a summary judgment order. *See Level Sleep LLC v. Sleep No. Corp.*, No. 2020-1718, 2021 WL
2 2934816, at *3 (Fed. Cir. July 13, 2021) (“[A] district court may (and sometimes must) revisit,
3 alter, or supplement its claim constructions . . . to the extent necessary to ensure that final
4 constructions serve their purpose of genuinely clarifying the scope of claims for the finder of
5 fact.” (quoting *In re Papst Licensing Digit. Camera Pat. Litig.*, 778 F.3d 1255, 1261 (Fed. Cir.
6 2015)); *id.* (“[T]he district court was well within its power to clarify, supplement, and even alter
7 its construction”).

8 With the benefit of additional briefing about circuit technology, greater understanding of
9 the way a POSITA would discuss the relevant circuit components, and increased familiarity with
10 Federal Circuit case law, the Court concludes that modification of its claim construction is
11 appropriate and necessary. The Court no longer believes that this term is a means-plus-function
12 term governed by § 112, ¶ 6. And while the Court initially believed that the “voltage-raising
13 means” term should be construed similarly to the “information-voltage generating means” term
14 (another term in the ’097 Patent that the Court construed as a means-plus-function limitation),
15 the Court now understands that the “voltage-raising means” term conveys structure in a way that
16 “information-voltage generating means” does not. As explained below, the Court understands
17 the “voltage-raising means” term to refer to a sufficiently definite class of structures: circuit
18 components that raise a voltage.

19 C. Revised Construction of the “voltage-raising means” Term

20 During claim construction, the parties disputed the meaning of the term “voltage-raising
21 mean that are arranged to raise the voltage value of the control signal.” The parties disagreed
22 about whether it was a means-plus-function term subject to § 112, ¶ 6. Impinj said that the term
23 is governed by § 112, ¶ 6. Dkt. # 135 at 21. NXP disagreed, arguing that the term be given its
24 plain and ordinary meaning, which it interpreted to be “a circuit that raises the voltage value of

1 the control signal.” Dkt. # 137 at 24. While the Court initially sided with Impinj on this
 2 question, it now believes NXP has the better argument. Accordingly, the Court now holds that
 3 the term is not subject to § 112, ¶ 6, and construes the term to mean “a circuit that raises the
 4 voltage value of the control signal.”

5 The term includes the word “means,” which creates a presumption that the limitation is a
 6 means-plus-function claim subject to § 112, ¶ 6. *Egenera*, 972 F.3d at 1372. But the Federal
 7 Circuit has cautioned that courts must not reflexively “evaluate[] form over substance when
 8 evaluating whether a claim limitation invokes § 112, para. 6.” *Williamson*, 792 F.3d at 1348.

9 The Federal Circuit has explained:

10 In making the assessment of whether the limitation in question is a means-plus-
 11 function term subject to the strictures of § 112, para. 6, our cases have emphasized
 12 that the essential inquiry is not merely the presence or absence of the word
 “means” but whether the words of the claim are understood by persons of ordinary
 skill in the art to have a sufficiently definite meaning as the name for structure.

13 *Id.* (citation omitted).

14 And importantly, “[t]o determine whether a claim recites sufficient structure, it is
 15 sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art
 16 to designate structure, *even if the term covers a broad class of structures and even if the term*
 17 *identifies the structures by their function.*” *Skky*, 859 F.3d at 1019 (emphasis added) (citation
 18 and quotation marks omitted). That is, “a claim term ‘need not connote a single, specific
 19 structure,’ and may instead ‘describe a class of structures’ and still recite ‘sufficiently definite
 20 structure’ to not invoke § 112 ¶ 6.” *Dyfan*, 28 F.4th at 1365–66.

21 The Court concludes that a POSITA would understand the “voltage-raising means” term
 22 as referring to sufficiently definite structure. The term refers to the class of *circuit components*
 23 (tangible structure) used to raise the voltage within a circuit. *Cf. Inventio AG v. ThyssenKrupp*
 24 *Elevator Americas Corp.*, 649 F.3d 1350, 1358 (Fed. Cir. 2011) (“In past cases, we have

1 concluded that a claimed ‘circuit,’ coupled with a description of the circuit’s operation in the
 2 claims, connoted sufficiently definite structure to skilled artisans to avoid the application of §
 3 112, ¶ 6.” (*overruled on other grounds by Williamson*, 792 F.3d 1339)); *Apex Inc. v. Raritan*
 4 *Comput., Inc.*, 325 F.3d 1364, 1373–74 (Fed. Cir. 2003) (holding that even the term “circuit”
 5 “itself connotes some structure”). The language in the claim not only limits the types of circuits
 6 that qualify (only circuit components that raise a voltage), but also provides some rudimentary
 7 explanation of the way these voltage-raising components interface with the rest of the circuit
 8 (connected in some way to the control signal).

9 As Dr. Madisetti explained, “a POSITA would have understood,” for example, “that
 10 voltage values could be raised using a charge pump or a voltage multiplier that was well known
 11 in the art” Dkt. # 137-4 at 41.² No doubt, other voltage-raising components exist, too, as the
 12 Court has learned throughout this litigation. But a term can convey adequate structure even if it
 13 covers a “class of structures.” *Skky*, 859 F.3d at 1019 (citation omitted). Here, the term does not
 14 describe an infinitely malleable and open-ended category of any device or apparatus, however
 15 conceived, that could raise a voltage. Rather, the term connotes a finite list of possible
 16 structures, limited only to certain *circuit components* (like a charge pump or voltage multiplier).
 17 Simply put, there are known circuit components that a POSITA might colloquially call “voltage
 18 raisers” or “voltage-raising” components. This is enough to convey structure because it serves as
 19 a *name* for a type of structure. *Williamson*, 792 F.3d at 1349 (“The standard is whether the
 20 words of the claim are understood by persons of ordinary skill in the art to have a sufficiently
 21 definite meaning as the name for structure.”).

22
 23 ² Impinj did not submit a competing expert declaration. While the Court initially gave Dr.
 24 Madisetti’s statements limited weight because they were somewhat conclusory, his explanation accords
 with the Court’s improved understanding of circuit design and the language used by persons skilled in
 this field. Therefore, the Court gives Dr. Madisetti’s testimony some weight in evaluating the claim term.

1 And it does not matter that this structure is conveyed, in part, by functional language.
2 Many structures derive their names from the functions they serve. *See Greenberg v. Ethicon*
3 *Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) (“Many devices take their names from
4 the functions they perform. . . . What is important is not simply that a [term] is defined in terms
5 of what it does, but that the term, as the name for structure, has a reasonably well understood
6 meaning in the art.”); *Skky*, 859 F.3d at 1019 (“[I]t is sufficient if the claim term is used in
7 common parlance or by persons of skill in the pertinent art to designate structure, . . . *even if the*
8 *term identifies the structures by their function.*” (emphasis added) (citation omitted)).

9 To be sure, today’s order necessarily requires repudiation of some of the reasoning found
10 in the Court’s previous claim construction order. Portions of this order may contradict portions
11 of the Court’s previous claim construction order. But with the benefit of a deeper understanding
12 of the technology at issue, additional insight about the way a POSITA would discuss circuit
13 components, and an improved grasp of Federal Circuit case law, the Court concludes that this is
14 the better construction of the term.³

15 Accordingly, the Court holds that “voltage-raising means that are arranged to raise the
16 voltage value of the control signal” is not a means-plus-function limitation. The Court adopts NXP’s
17 construction and construes the term to mean “a circuit that raises the voltage value of the control
18 signal.”

19 D. Other Issues

20 The Court takes this opportunity to address a few other related issues.

21 First, as will be further explained in a forthcoming order, the Court will grant the portion
22 of Impinj’s motion to exclude Dr. Madisetti (Dkt. # 274) regarding NXP’s ’097 infringement

23
24 ³ To avoid any doubt, this order fully replaces all reasoning concerning the “voltage-raising means” term found in the prior order.

1 theory based on a rectifier and level shifter combination. NXP's infringement contentions did
2 *not* disclose a rectifier and level shifter combination as satisfying the "voltage-raising means"
3 limitation. Its infringement contentions focused nearly exclusively on a level shifter. And
4 because the Court has now adopted NXP's preferred construction, NXP cannot justify its failure
5 to disclose its combination-based theory in its infringement contentions. Accordingly, NXP
6 cannot rely on the rectifier and level shifter combination to satisfy this claim limitation. The
7 parties should take this ruling into account in any future filings.

8 Second, the Court recognizes that its decision today may affect the parties and the case in
9 various ways. After the parties have met and conferred, the Court is amenable to a telephonic
10 status conference about how, if at all, this decision affects the litigation as a whole. The parties
11 are advised to email Courtroom Deputy Ashleigh Drecktrah if they wish to arrange for a
12 telephonic conference.

13 IV.

14 CONCLUSION

15 For the reasons above, the Court modifies its construction of the "voltage-raising means"
16 term of the '097 Patent. The Court does not construe the term as a means-plus-function term,
17 and interprets it to mean "a circuit that raises the voltage value of the control signal."

18 Dated this 6th day of March, 2023.

19 

20 John H. Chun
21 United States District Judge
22
23
24